

Amendments to the Claims

The following listing of the claims replaces all prior versions and listings of the claims in the application:

Listing of Claims

1.-13. (Canceled)

14. (Currently amended) A catheter comprising:

an elongated body; having

a unitary electrode having at least one bore formed through the electrode, wherein the unitary electrode couples to and is disposed at a first distal end portion of the elongate body;

a conductive at least one current-carrying wire extending through said elongate body and electrically coupled, which wire is electrically connected to said unitary electrode; and

an irrigation channel extending through said elongate body and fluidly coupled to a proximal portion of the at least one bore and being adapted to supply a cooling fluid through said body, at least one outlet opening of the channel being provided in or near said first end; and

a temperature sensor arranged in said first end,

wherein said at least one bore includes at least one fluid outlet branch coupling to a lateral side of the unitary electrode and said at least one fluid outlet branch includes one of a thermally insulating interior casing and a thermally poorly conductive material disposed within said at least one fluid outlet branch channel is thermally insulated from said electrode.

15. (Currently amended) A The catheter according to claim 14, wherein said at least one bore couples to a lateral exterior portion of the unitary electrode outlet opening is provided in said first end.

16. (Currently amended) ~~A~~The catheter according to claim 14, wherein said irrigation channel has a longitudinal axisdirection and said at least one branch comprises~~outlet opening comprises~~ a series of outlet openings that, which ~~outlet openings are arranged such that, during use, cooling guide a fluid~~ supplied through said irrigation channel and said at least one bore flows out through said ~~outlet openings in an outflow direction which forms an angle with~~ said longitudinal direction.

17. (Currently amended) ~~A~~The catheter according to claim 16, wherein the series of outlet openings are configured at an angle relative to the longitudinal axis, and wherein said angle comprises~~is an angle of between about 30 degrees and about 90 degrees.~~

18. (Currently amended) ~~A~~The catheter according to claim 16[[14]], wherein the series of at least one outlet openings is provided with a thermally insulating unitary inner casing.

19. (Currently amended) The catheter according to claim 14, wherein the first distal end portion comprises~~includes:~~

a core manufactured from a material having one of a low thermal conductivity and/~~or~~ a low electrical conductivity; and

a casing surrounding at least a substantial portion of the core wherein said casing comprises a material having one of a relatively highergood heat conductivity and/~~or~~ a relatively highergood electrical conductivity relative to the core.

20. (Currently amended) The catheter according to claim 19, wherein the core is ~~made~~fabricated from at least one of a plastic material, a ceramic

material, and/or a glass material, and wherein the casing is fabricated made of a metallic material.

21. (Currently amended) The catheter according to claim 19, wherein the temperature sensor comprises a thermocouple coupled attached to a portion of the casing.

22. (Currently amended) The catheter according to claim 14, wherein said at least one bore terminatessaid outlet opening is provided in at an interface between said elongate body and said unitary electrodeadjacent said first end.

23.-26. (Canceled)

27. (Currently amended) A catheter comprising:
an elongated body; having an outer surface and
a unitary electrode having a longitudinal axis disposed at a first end of
the elongate body and having at least one outlet opening formed therethrough at
an angle relative to the longitudinal axis thereof;

at least one electrically conductive live wire extending through said elongated body, said at least one electrically conductive live wire coupled being connected to said unitary electrode;

an irrigation channel extending through said elongated body and fluidly coupled to the at least one outlet opening, said channel being adapted configured to deliver a cooling fluid through said elongated body from a remote source of fluid and into said at least one passageway; and

at least one of a thermally insulative material and a thermally poorly conductive material disposed to insulate at least a portion of said at least one outlet opening extending from said channel to said outer surface of said elongated body at or near said electrically conductive first end; and

a temperature sensor arranged in said first end.

28. (Currently amended) A catheter according to claim 27, wherein said irrigation channel has a longitudinal axis and the at least one, wherein said at least one thermally insulated outlet opening comprises a series of outlet opening[s] is adapted to deliver said cooling fluid to anward said outer surface of said elongated body in an outflow direction, and wherein said outflow direction comprises at an angle relative to said longitudinal axis.

29. (Currently amended) A catheter according to claim 28, wherein said at least one thermally insulated outlet opening comprises a plurality of outlet openingsa thermally insulating inside casing.

30. (Canceled)

31. (Currently amended) A catheter according to claim 27, wherein said first end is attached to said elongated body, wherein saidfurther comprising a temperature sensor coupled to the electrodeis provided in said first end at a distance from an interface formed between said elongated body and said unitary electrodefirst end.

32.-37. (Canceled)

38. (New) A method, comprising:

deploying a unitary electrode body coupled to a distal portion of an elongate flexible shaft into contact with a volume of a target tissue, wherein said unitary electrode body includes a longitudinal fluid passageway formed from a proximal end portion through to a less proximal surface portion and the fluid passageway couples to at least one outlet opening formed at an angle relative to the longitudinal fluid passageway;

measuring a temperature of said unitary electrode body with a temperature sensor coupled to the electrode body and spaced from the fluid passageway; and

dispensing fluid from a remote vessel through an irrigation channel within the elongate body fluidly coupled to said fluid passageway,

wherein at least a portion of an interior surface of said at least one outlet opening comprises a thermally insulative material.

39. (New) A method according to claim 38, wherein the thermally insulative material comprises an electrically insulative material.

40. (New) A method according to claim 39, wherein one of the thermally insulative material and the electrically insulative material comprises preformed tubular member.

41. (New) A catheter according to claim 14, further comprising a temperature sensor thermally coupled to said unitary electrode.

42. (New) A catheter according to claim 41, wherein the temperature sensor comprises a least one of a thermocouple and a thermistor.

43. (New) A catheter according to claim 14, further comprising low thermally conductive material casing disposed between the at least one bore and at least one fluid outlet branch and the unitary electrode.

44. (New) A catheter according to claim 14, further comprising means for thermally insulating the interior of the at least one bore and the at least one fluid outlet branch from the unitary electrode.

45. (New) A catheter according to claim 41, wherein the unitary electrode is formed like one of a cap-shaped member and a cup-shaped member, each having a convex inner portion disposed adjacent the means for thermally insulating.

46. (New) A catheter according to claim 45, wherein the temperature sensor is coupled to the convex inner portion.

47. (New) A catheter according to claim 14, wherein the unitary electrode comprises a relatively thin metallic member coupled to the exterior of an inner portion formed of a relatively low thermally conductive material.

48. (New) A catheter according to claim 27, further comprising a temperature sensor directly thermally coupled to the unitary electrode and spaced from the at least one outlet opening and the material.